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APPARENT SIBLICIDE IN PEREGRINE FALCONS

Siblicide occurs regularly in many species of raptors but has not been reported for falcons. Ian Newton (1979, *Population ecology of raptors*, Buteo Books, Vermillion, SD U.S.A.) found no record of serious sibling aggression among the falcons. We here report an instance of apparent siblicide in the Peregrine Falcon (*Falco peregrinus*).

On 17 June 1994, we banded a brood of four young peregrines at Palisade Head, a cliff on the north shore of Lake Superior, Lake County, Minnesota. The young were about 17-d old. One of the four was weak and very bloody on its back from its shoulders to its tail, apparently picked by its nest mates. We removed it from the nest but it died within 2 hr despite careful handling. None of the other three nestlings showed any injuries, although all appeared thin.

The Palisade Head site seems not to be ideal location for peregrine nesting. Lake Superior is deep and cold, with rocky shores. Bird life on the lake and its mostly forested shores is sparse. The same female has nested at Palisade Head since 1988 with four different males. Brood size at fledging has been one young (3 yr), two young (once), three young (4 yr), and four (once). Prey species in years with broods of three or fewer have included small passerines, Blue Jays (*Cyanocitta cristata*), Northern Flickers (*Colaptes auratus*), shorebirds, small ducks, an occasional Rock Dove (*Columba livia*), bats and chipmunks taken off the cliff face. In 1990, the peregrines hatched four young. When the brood was about 3-wk old, the female began killing Ring-billed Gulls (*Larus delawarensis*). Over the next 6 wk, we identified about two dozen ring-bills that were taken. All were juveniles except for one adult. Herring Gulls (*Larus argentatus*) are abundant along the lakeshore, but ring-bills are scarce. The female seemed to hunt the ring-bills selectively. In years when the brood size is smaller than four, Ring-billed Gulls were taken infrequently and Herring Gulls were not taken at all. A further indication that prey is scarce at Palisade Head is our impression that single young at banding seem robust and well fed, while young in large broods appear malnourished. However, we have not quantified this observation.

The apparent siblicide we observed may well have been due to hunger. Well-fed peregrine nestlings seem to get along with little aggression. About 12 pairs of peregrines currently nest close to Lake Superior. Most of these probably face foraging problems similar to those at Palisade Head, as do many other pairs nesting in mostly forested habitats in the north. Therefore, hunger and starvation in peregrine broods may be common. Dead nestlings, whether starved or killed by siblings, would be quickly eaten by adults or fed to young. Peregrine nestlings can feed themselves starting at about 25 d of age and could eat dead siblings. Until siblicide is directly observed in peregrines, however, the bloody chick at Palisade Head remains the most convincing evidence that it occurs in Peregrine Falcons.

Adult Peregrine Falcons have been observed feeding dead young to their siblings (T. Cade pers. comm.). We have twice noted the disappearance of dead nestlings within a few hr of nest flooding by heavy rain; presumably they were eaten or removed by the parents. There has also been an instance where a small male peregrine nestling in a brood with two large females disappeared between nest visits in circumstances suggesting siblicide as a possible explanation (B. Mutch pers. comm.). We suggest that siblicide may occur fairly regularly in peregrine broods that are food-stressed.—**Harrison B. Tordoff, Bell Museum of Natural History and Department of Ecology, Evolution, and Behavior, University of Minnesota, 1987 Upper Buford Circle, St. Paul MN 55108 U.S.A, and Patrick T. Redig, The Raptor Center, University of Minnesota, 1920 Fitch Avenue, St. Paul MN 55108 U.S.A.**